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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,262	12/01/2003	Osamu Okumura	117757	1628
25944	7590	06/14/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER CALEY, MICHAEL H	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,262

Applicant(s)

OKUMURA, OSAMU

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12012003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claims 4 and 5 are objected to because of the following informalities:

Claims 4 and 5 reference multiple openings and/or protrusions. Claim 1 introduces only one slit opening and/or protrusion. The multiple openings of claims 4 and 5 therefore lack antecedent basis. Alternatively, the introduced slit and/or opening of claim 1 may be interpreted to mean “one or more” of such slit openings and/or protrusions. So that the content of claim 1 is in agreement with the content of claims 4 and 5 and as depicted in Figure 7B of drawings, the term slit opening and/or protrusion of claim 1 is interpreted broadly to mean one or more of such slit openings and/or protrusions.

Also “opening” of claims 4 of 5 should be corrected to be “slit opening” in addition to the correction for antecedent basis of multiple openings.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogishima et al. (U.S. Patent Application Publication 2002/0149728 “Ogishima”).

Regarding claims 1 and 8, Ogishima discloses a liquid crystal display device and electronic equipment having:

- a pair of substrates (Page 7 [0109]);

- a liquid crystal layer (Figure 18B element 230) held between the substrates and having a transmissive display region (Figure 18B element T) for transmissive display and a reflective display region (Figure 18B element R) for reflective display in each of a plurality of dot regions (Page 7 [0107]),

- the liquid crystal layer including a liquid crystal being initially vertically aligned and having negative dielectric anisotropy (Page 7 [0109]), and the pair of substrates each having an electrode (Figure 18B elements 212 and 222) to drive the liquid crystal arranged on a surface facing the liquid crystal layer,

- the electrode of at least one of the pair of substrates having a slit opening and/or a protrusion (Figures 18A and 18B elements 216 and 226) to control the alignment of the liquid crystal in each of the transmissive display region and the reflective display region, the slit opening being arranged through a part of the electrode, and the protrusion being arranged on the electrode and including a dielectric (Page 18 [0118]),

- the opening area of the slit opening and/or the occupying area of the dielectric protrusion in a plane direction of the substrate being set larger in the reflective display region than in the transmissive display region (Figures 18A and 18B).

Applicant is reminded that the phrase “the opening area of the slit opening and/or the occupying area of the dielectric protrusion in a plane direction of the substrate being set larger in

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the reflective display region than in the transmissive display region” is interpreted to include the area of one or more slits and/or protrusions due to the language of further limiting claims 4 and 5 and the embodiment disclosed in Figure 7B as addressed in claim 4.

Regarding claim 3, Ogishima discloses the dielectric protrusion as being arranged on the electrode and having an inclined surface inclining at a predetermined angle to the electrode surface (Figures 18A and 18B).

Regarding claim 4, Ogishima discloses the distance between adjacent two of the openings and/or protrusions arranged in the reflective display region as being smaller than the distance between adjacent two of the openings and/or protrusions arranged in the transmissive display regions (Figure 20A, vertical direction).

Regarding claim 5, Ogishima discloses the slit openings and/or the protrusions having a configuration to control the tilt direction of the vertically aligned liquid crystal molecules depending on change in electric field (Page 7 [0110]-[0113]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishima in view of Chen et al. (U.S. Patent No. 6,806,929 “Chen”).

Ogishima discloses all of the proposed limitations except for the distance between the electrodes arranged on the pair of substrates as being substantially equal in the transmissive display region and the reflective display region. Chen, however, teaches an analogous transfective device that has substantially equal distances in both regions (Column 2 line 48 – Column 3 line 30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the distance between the electrodes in the transmissive and reflective display regions to be substantially the same. Chen teaches a difference in driving voltages between regions as a means of avoiding the difficulty in reaching an appropriate reduction of cell gap in the reflective region (Column 1 lines 12-45). One would have been motivated to apply such a driving technique to the analogous display device disclosed by Ogishima to avoid problems associated with adjusting the cell gap in the reflective region and thus provide a substantially equal cell gap in the reflective and transmissive regions.

Claims 6 and 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Ogishima in view of Jisaki et al. (U.S. Patent No. 6,753,939 “Jisaki”).

Regarding claim 6, Ogishima discloses an upper substrate and a lower substrate as the pair of substrates (Page 7 [0109]), the lower substrate having a reflective film on a side facing the liquid crystal layer (Figure 18B element 212r, the reflective layer being selectively arranged only in the reflective display regions (Figure 18B elements R and T)).

Ogishima fails to explicitly disclose the lower substrate as having a backlight for transmissive display arranged on an opposite side to the liquid crystal layer. Jisaki, however, teaches such a backlight arranged as proposed for providing illumination for the transmissive region of the display in a display having both reflective and transmissive regions (Figure 4 element 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have arranged a backlight on the opposite side of the lower substrate as proposed. One would have been motivated to provide a backlight as proposed to enable operation of the display in a transmissive mode to allow for display use in poorly lit conditions according to conventional means.

Regarding claim 7, Ogishima discloses the upper substrate as the color filter substrate (Page 7 [0109]), but fails to explicitly disclose the color filter as on a side of the substrate facing the liquid crystal layer. Jisaki, however, teaches such an arrangement of the color filter (Figure 4 element 29) on a same side of the upper substrate as the liquid crystal layer (Figure 4 element 3) in common with conventional techniques in the art for direct view liquid crystal displays.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the color filter disclosed by Ogishima on the side of the upper substrate facing the liquid crystal. One would have been motivated to form the color filter on the substrate on the same side as the liquid crystal to avoid problems of parallax while viewing the display at wide viewing angles.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286.


The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley
June 11, 2005

mhc



DUNG T. NGUYEN
PRIMARY EXAMINER